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10/777,437	02/12/2004	Larry Schoonover	ETS-0001	4781
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EXAMINER MASINICK, MICHAEL D				
ART UNIT		PAPER NUMBER		
2125				

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/777,437

Applicant(s)

SCHOONOVER, LARRY

Examiner

Michael D. Masinick

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 5, 6 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/31/05, 8/2/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-13 are pending in this application.

#### ***Response to Arguments***

2. Applicant's arguments filed 8/25/2005 have been fully considered but they are not fully persuasive. The previous USC 112 rejection has been removed because of amendments made by applicant. All art rejections stand as previously written.
3. Applicant has amended independent claims 1, 12, and 13 to replace the term "control signal" with "a plurality of setpoints determined for". Examiner does not feel that this changes the meaning of the claim in any meaningful way. A control signal is inherently a group of signals containing setpoint values directing a machine or control system to provide a certain function.
4. With regard to claims 1, 12, and 13, applicant asserts that the Boger patent does not show "obtaining valve information while said valve operates in response to a plurality of setpoints determined for controlling said process". Examiner submits the abstract of Boger which states "The positioner system can diagnose the valve while the valve process is running or during a maintenance operation". As applicant notes, the Boger patent "valve information is obtained by moving the valve through a special sequence of movements and the data is analyzed in response to these movements". There is nothing in Boger that would prevent the diagnostics from operating while the valve operates and applicant's suggestion to the contrary is not persuasive.

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5. In addition, examiner calls applicant's attention to their own disclosure in paragraphs 0005-0007 which state:

[0005] The use of data acquisition systems to gather valve operation data has been available for some time but has not been widely used for specific valve diagnostic applications. More often data acquisition system data has been used to evaluate overall process operation and in process tuning. Valve setpoint and valve position have been available using SCADA systems or the control system for some time.

[0006] More recently, some of the data acquisition has been moved to the valve itself in the form of smart positioners. Instead of the valve setpoint and position being measured from analog signals sent back to the control room, these measurements are made at the valve and sent back to the control room in digital form using one of several standard communications protocols. Some of the vendors of the smart positioners have included diagnostic applications in the firmware of the positioners allowing the positioner to control the valve to perform some diagnostic tests. These tests include response time tests, step response tests, actuator signatures, and friction analysis. With a few exceptions, however, these tests must still be performed when the process is not running.

[0007] There has been considerable interest in tests that can be performed when the process is still running. At least one vendor has built some tests in the firmware of their positioner to gather diagnostic information. This vendor requires the use of a special version of the positioner to work with software in the control room to perform these tests and can provide information about valves during the normal operation or during operation where the valve is artificially moved but only a small amount which would be tolerated by the running operation.

6. Examiner notes that these paragraphs noted as background on the invention state that "with a few exceptions" these tests must still be performed when the process is not running. In the current form, these paragraphs appear to read on at least the independent claims in this application. Applicant is asked to clarify what "with a few exceptions" means and is reminded that even one exception is not allowed if the claimed subject matter was performed prior to applicant's invention.

7. With regard to claim 2, applicant asserts that the Boger patent does not show "applying a step input to said model to generate a step response". Boger clearly shows a

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step response test in the previously cited section. The performance of a step response test inherently contains the application of a step input to a model. While Boger does not specifically mention this step, it is inherent in the step response test process.

8. With regard to claims 7-10, examiner directs applicant to column 14, lines 9-19 in addition to the previously cited section (the paragraph immediately following the previously cited section). This paragraph notes, almost word for word, the subject matter of claims 7-10. While examiners cited section did not show these features, the rejection was based on the whole patent, and it is the obligation of the applicant to assess the claims with regard to the entire patent.

9. The art rejection of claim 11 is removed, as this claim is now clear.

10. Applicant is also asked to review the documents submitted in their Information Disclosure statement relating to "Fisher Controls FieldVue". Examiner notes that these documents appear to read on at least the independent claims as they are currently written.

### ***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-4, 7-10, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,272,401 to Boger et al.

**13.** Referring to claim 1, 12, and 13, Boger shows a method of performing online valve diagnostics for a valve operating in a process, the method comprising: obtaining valve information while said valve operates in response to a plurality of setpoints controlling said process, said valve operating through a series of gradual movements (Abstract – “The positioner system can diagnose the value while the valve process is running...”); said valve information including at least two of setpoint data, position data and pressure data (Col 1, lines 44-45); deriving at least one of step response, friction and spring range for said valve based on said valve information (Col 11, lines 52-58).

**14.** Referring to claim 2, Boger shows deriving a model of valve response to setpoint changes in response to said valve information (“intelligently monitors and adjusts...” – Col 9, lines 47-65); adjusting said model in response to error between predictions generated by said model and actual position information (Col 10); and applying a step input to model to generate a step response (Col 13, lines 23-30).

**15.** Referring to claim 3 and 4, Boger shows adjusting said model includes adjusting a first and second parameters affecting response time and overshoot (Column 10).

Examiner notes that the wording of this claim can be interpreted in many different ways.

Boger shows a way to adjust the BIAS variable, which would inherently have an affect on the response time and the overshoot (Column 24).

**16.** Referring to claims 7-10, Boger shows deriving a distribution of said position data by transforming said pressure data and said position data in response to a spring range of said valve; determining friction of said valve in response to said distribution, determining friction includes determining a difference between an upper percentile and a lower percentile of said distribution, and wherein said upper percentile is 90 percent and said

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lower percentile is 10 percent (Column 13, lines 53-64 and Column 14, lines 9-19).

*Allowable Subject Matter*

17. Claims 5 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. Claim 11 is objected to as being dependent upon a rejected base claim, but would NOT be considered allowable as it is directed to a non-selectable element of claim 1. Therefore, the rewritten claim could be read upon without the claim elements of claim 11 being considered.

*Conclusion*

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

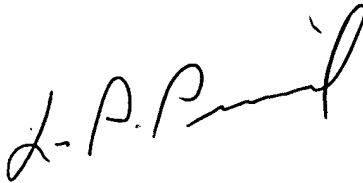
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Masinick whose telephone number is (571) 272-3746. The examiner can normally be reached on Mon-Fri, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MDM



LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100